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yet be discovered, but it has not been as yet; and it will not be soon observed with the embolomeric structure.

The author's adhesion to the law of priority in specific and generic names contributes much to the simplification of nomenclature. He is not as strict in the matter of family names. We cannot agree with him in changing a name as preoccupied, so long as it differs from the supposed preoccuper by one letter. This is not preoccupation.—C.

**A. S. Woodward's Fossil Fishes.**<sup>2</sup>—The fine collection of fossil fishes contained in the British Museum has been at last utilized as the basis of a systematic work. No better appointment could have been made for the accomplishment of this purpose than Mr. A. Smith Woodward, whose abilities as a systematic zoologist have been amply tested in this difficult field. The first part of the catalogue is devoted to the Elasmobranchii. Two hundred and ninety-six species are contained in the museum collection, which is only a part of those actually known. The value of the work is greatly enhanced by the reference list of all described species given under the head of each genus. Of the above species, twenty-four are included under the Ichthyotomi, of which fourteen are Pleuracanthidæ, and the remainder Cladodontidæ. The systematic position of the latter family is for the first time thus indicated. The doubts expressed as to the segmentation of the skull of *Didymodus*, expressed in this place by Mr. Woodward, have been since set at rest by an inspection of the specimens themselves, as he acknowledges in his report on American collections published in the *Geological Magazine* at a later date.

In the second part of the work Mr. Woodward takes in hand the question of the systematic relations of the fishes in general. He discards the division Ganoidei as unavailable, and adopts the subclasses Elasmobranchii, Holocephali, Dipnoi, and Teleostomi, as has been done in this country. He does not adopt the Agnatha, but accepts the superorder Ostracodermi<sup>3</sup> Cope, which, according to some authors, represents the former in the Paleozoic formations, and places them as a fifth subclass of the Pisces. This is a great advance over previous views held in Europe, and it now remains to be seen whether the opinion that the Ostracophori are outside the class of fishes is to be sustained by further discovery or not.

<sup>2</sup> Catalogue of Fossil Fishes in the British Museum. By Arthur Smith Woodward. Part I., 1889; Part II., 1891. Published by the trustees of the British Museum.

<sup>3</sup> This name was used by Gill in 1861 for the Scleroderm Plectognath fishes. I regret the apparent necessity for changing it, and propose the term Ostracophori to take its place.

Another important point is the definite location of the Acanthodii as a third order of the Elasmobranchii, for what appear to be entirely valid reasons. These are quite sustained by the results of a study of several species of Acanthodes, published in 1890 by Dr. Otto Reis, in a paper which had not probably come into Dr. Woodward's hands in time for notice.<sup>4</sup> The next important systematic step is the location of what is left of the old Placodermi after the abstraction of the Ostracophori, represented by the Coccosteidæ. These Dr. Woodward regards as Dipnoi, and the view is a plausible one. Doubtless paleontologists have no better place for them, and new evidence is likely to confirm the proposition. He names the order the Arthrodira.

Two orders of Teleostomi are adopted, the Crossopterygia and Actinopterygia; the Rhipidopterygia and Podopterygia being rejected. We have given reasons in the NATURALIST for April why we think these orders (or better, superorders) should be retained. Under Crossopterygia, four suborders are recognized,—viz., Haplistia (Tarrasiidæ); Rhipidistia (Holoptychiidæ, Rhizodontidæ, Osteolepididæ, and Onychodontidæ); Actinistia (Coelacanthidæ); and Cladistia (Polypteridæ). The Actinopterygia are divided into two sections, A and B, corresponding to our Podopterygia and Actinopterygia respectively. The present work enters only the former division, which includes the families Palæoniscidæ, Platysomatidæ, Catopteridæ, Chondrosteidæ, Belonorhynchidæ, Acipenseridæ, and Polyodontidæ. The volume concludes with the Platysomidæ.

Many important points in the structures of these fishes are discussed, and the species which are included are placed on a permanent basis. The work is illustrated by numerous good lithographs.—C.

**Mrs. Bodington on Evolution.**<sup>5</sup>—This book, of two and a quarter hundred pages, is a popular presentation of many of the facts discovered by the more modern laborers in several fields of biology. Its nine chapters treat of the following subjects: The evolution of the eye; extinct and surviving mammalia; the flora of the past; interesting facts in evolution; microörganisms as parasites; puzzles in paleontology; the air-bladders of fishes; Neo-Lamarckism; the origin of the fittest. The authoress' presentation of these topics is both graphic and scientific, and is well calculated to interest the gen-

<sup>4</sup> Zurkenntnis des Skelets der Acanthodinen, von Dr. Otto M. Reis; Geogn. Jahreshefte des Kgl. bayer. Oberbergamts, 1890.

<sup>5</sup> Studies in Evolution and Biology. By Alice Bodington. London: Elliott Stock, 8vo, 1890.